PB-239 592

ROME POND, JEFFERSON COUNTY, WISCONSIN

Pacific Northwest Environmental
Research Laboratory

Prepared for:

National Environmental Research Center
Wisconsin Department of Natural Resources
Wisconsin National Guard

October 1974

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16. ABSTRACT
Annual total phosphorus and total nitrogen loadings to the lake were estimated and subdivded according to either point or non-point source origin. An assessment of the lake's trophic condition and limiting nutrient is also provided. All data collected by the U.S.E.P.A. National Eutrophication Survey during the one year study of the lake and its tributaries are included in the report.

17. KEY WORDS AND DOCUMENT ANALYSIS

a. DESCRIPTORS	b. IDENTIFIERS/OPEN ENDED TERMS	c. COSATI Field/Group
eutrophication lakes nutrients phosphorus nitrogen loading		05B 05C

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Report
on
Rome Pond
Jefferson County
Wisconsin
EPA Region V
Working Paper No. 47

With the cooperation of the
Wisconsin Department of Natural Resources
and the
Wisconsin National Guard

October, 1974

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FOREWORD

The National Eutrophication Survey was initiated in 1972 in response to an Administration commitment to investigate the nationwide threat of accelerated eutrophication to fresh water lakes and reservoirs.

OBJECTIVES

The Survey was designed to develop, in conjunction with state environmental agencies, information on nutrient sources, concentrations, and impact on selected freshwater lakes as a basis for formulating comprehensive and coordinated national, regional, and state management practices relating to point-source discharge reduction and non-point source pollution abatement in lake watersheds.

ANALYTIC APPROACH

The mathematical and statistical procedures selected for the Survey's eutrophication analysis are based on related concepts that:

a. A generalized representation or model relating sources, concentrations, and impacts can be constructed.

b. By applying measurements of relevant parameters associated with lake degradation, the generalized model can be transformed into an operational representation of a lake, its drainage basin, and related nutrients.

c. With such a transformation, an assessment of the potential for eutrophication control can be made.

LAKE ANALYSIS

In this report, the first stage of evaluation of lake and watershed data collected from the study lake and its drainage basin is documented. The report is formatted to provide state environmental agencies with specific information for basin planning [§303(e)], water quality criteria/standards review [§303(c)], clean lakes [§314(a,b)], and water quality monitoring [§106 and §305(b)] activities mandated by the Federal Water Pollution Control Act Amendments of 1972.

Beyond the single lake analysis, broader based correlations between nutrient concentrations (and loading) and trophic condition are being made to advance the rationale and data base for refinement of nutrient water quality criteria for the Nation's fresh water lakes. Likewise, multivariate evaluations for the relationships between land use, nutrient export, and trophic condition, by lake class or use, are being developed to assist in the formulation of planning guidelines and policies by EPA and to augment plans implementation by the states.

ACKNOWLEDGMENT

The staff of the National Eutrophication Survey (Office of Research & Development, U. S. Environmental Protection Agency) expresses sincere appreciation to the Wisconsin Department of Natural Resources for professional involvement and to the Wisconsin National Guard for conduct of the tributary sampling phase of the Survey.

Francis H. Schraufnagel, Acting Assistant Director, and Joseph R. Ball of the Bureau of Water Quality, and Donald R. Winter, Lake Rehabilitation Program, provided invaluable lake documentation and counsel during the Survey. Central Office and District Office personnel of the Department of Natural Resources reviewed the preliminary reports and provided critiques most useful in the preparation of this Working Paper series.

Major General James J. Lison, Jr., the Adjutant General of Wisconsin, and Project Officer CW-4 Donald D. Erickson, who directed the volunteer efforts of the Wisconsin National Guardsmen, are also gratefully acknowledged for their assistance to the Survey.

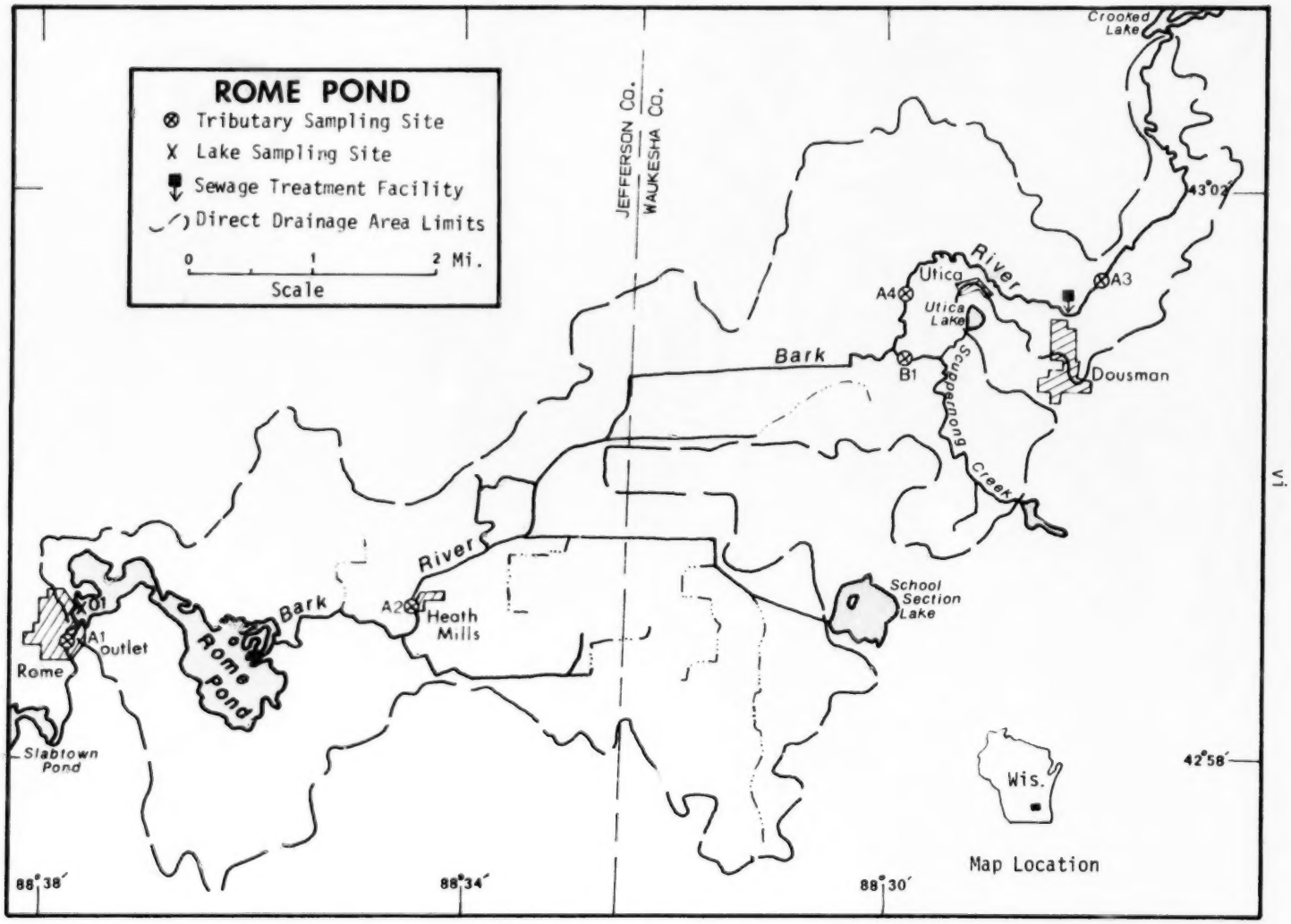
NATIONAL EUTROPHICATION SURVEY

STUDY LAKES

STATE OF WISCONSIN

LAKE NAME	COUNTY
Altoona	Eau Claire
Beaver Dam	Barron
Beaver Dam	Dodge
Big Eau Pleine	Marathon
Browns	Racine
Butte des Morts	Winnebago
Butternut	Price, Ashland
Castle Rock Flowage	Juneau
Como	Walworth
Crystal	Vilas
Delavan	Walworth
Eau Claire	Eau Claire
Elk	Price
Geneva	Walworth
Grand	Green Lake
Green	Green Lake
Kegonsa	Dane
Koshkonong	Jefferson, Rock, Dane
Lac La Belle	Waukesha
Long	Price
Middle	Walworth
Nagawicka	Waukesha
Oconomowoc	Waukesha
Okauchee	Waukesha
Petenwell Flowage	Juneau
Pewaukee	Waukesha
Pigeon	Waupaca
Pine	Waukesha
Poygan	Winnebago, Waushara
Rock	Jefferson
Rome Pond	Jefferson, Waukesha
Round	Waupaca
Shawano	Shawano

LAKE NAME	COUNTY
Sinnissippi	Dodge
Swan	Columbia
Tainter	Dunn
Tichigan	Racine
Townline	Oneida
Trout	Vilas
Wapogassett	Polk
Wausau	Marathon
Willow	Oneida
Winnebago	Winnebago, Fond Du Lac, Calumet
Wisconsin	Columbia
Wissota	Chippewa
Yellow	Burnett


ROME POND
Tributary Sampling Site
X Lake Sampling Site
Sewage Treatment Facility
Direct Drainage Area Limits
0 1 2 Mi.
Scale
JEFFERSON Co.
WAUKESHA Co.
Crooked Lake
43°02′
Utica
River
A4
A3
Utica Lake
Bark
B1
Dousman
Scuppernong Creek
River
Bark
A2
Heath Mills
X01
A1
outlet
Rome
Rome Pond
Slabtown Pond
School Section Lake
Wis.
Map Location
42°58′
88°38′
88°34′
88°30′

ROME POND

STORET NO. 5568

I. CONCLUSIONS

A. Trophic Condition:

Limited Survey data and the records of others indicate Rome Pond is eutrophic.

B. Rate-Limiting Nutrient:

Rome Pond was not sampled in the fall; and, consequently, no algal assay sample was collected. However, limited lake data indicate nitrogen limitation in June and August of 1972.

C. Nutrient Controllability:

1. Point sources--During the sampling year, Rome Pond received a total phosphorus load at a rate about twice that proposed by Vollenweider (in press) as "dangerous"; i.e., a eutrophic rate (see page 12). However, only about 8% of that load is attributable to the Village of Dousman.

It is concluded that phosphorus control at Dousman would not result in any significant improvement in the trophic condition of Rome Pond.

2. Non-point sources--The estimated mean total phosphorus export of the Bark River (see page 12) is somewhat higher than other unimpacted streams elsewhere in the Rock River basin (e.g.,

74 lbs P/mi^2/yr in Otter Creek, tributary to Lake Koshkonong). This may be due to underestimation of the Dousman phosphorus contribution but probably is due to upstream cultural impacts (note that the phosphorus export of the Bark River at the outlet of upstream Nagawicka Lake was 118 lbs/mi^2/yr).

II. INTRODUCTION

Rome Pond, also known as Rome Mill Pond, is an impoundment of the Bark River in the lower Rock River drainage of south-central Wisconsin. Almost all of the frontage is within a State public hunting area, and extensive wetlands adjoin the pond.

Recreational uses of the pond include hunting, boating, swimming, and fishing. Game fish present include northern pike, largemouth bass, and panfish. Reportedly, weeds and winterkills are major management problems (Poff, et al., 1968).

III. LAKE AND DRAINAGE BASIN CHARACTERISTICS

A. Lake Morphometry:

1. Surface area: 446 acres.
2. Mean depth: 2* feet.
3. Maximum depth: 17 feet.
4. Volume: 892 acre/feet.
5. Mean hydraulic retention time: 6 days.

B. Tributary and Outlet:
(See Appendix A for flow data)

1. Tributaries -

Name	Drainage area†	Mean flow†
Bark River	106.0 mi^2	67.4 cfs
Minor tributaries & immediate drainage -	13.3 mi^2	9.1 cfs
Totals	119.3 mi^2	76.5 cfs

2. Outlet -

Bark River	120.0 mi^2††	76.5 cfs

C. Precipitation†††:

1. Year of sampling: 38.7 inches.
2. Mean annual: 30.7 inches.

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* Narf, 1974.

† Drainage areas are accurate within ±0.5%; mean daily flows are accurate within ±40%; mean monthly flows are accurate within ±35%; and normalized mean monthly flows are accurate within ±35%.

†† Includes area of lake.

††† See Working Paper No. 1, "Survey Methods".

IV. LAKE WATER QUALITY SUMMARY

Rome Pond was sampled two times during the open-water season of 1972 by means of a pontoon-equipped Huey helicopter. Each time, near-surface samples were collected for physical and chemical analyses from one station on the Pond (see map, page vi). During each visit, a sample was collected for phytoplankton identification and enumeration, and a separate samp as collected for chlorophyll a analysis.

The results obtained are presented in full in Appendix B and are summarized below.

A. Physical and chemical characteristics:

Parameter	1st Sample (06/22/72)	2nd Sample (08/19/72)
Temperature (Cent.)	21.0	25.2
Dissolved oxygen (mg/l)	13.4	4.7
Conductivity (μmhos)	420	475
pH (units)	8.9	7.7
Alkalinity (mg/l)	240	204
Total P (mg/l)	0.112	0.092
Dissolved P (mg/l)	0.101	0.064
$NO_2 + NO_3$ (mg/l)	0.020	0.100
Ammonia (mg/l)	0.070	0.100
Secchi disc (inches)	36	36

B. Biological characteristics:

1. Phytoplankton -

Sampling Date	Dominant Genera	Number per ml
06/22/72	1. Dinobryon	391
	2. Nitzschia	184
	3. Synedra	98
	4. Cocconeis	72
	5. Navicula	65
	Other genera	156
	Total	966
08/19/72	1. Nitzschia	828
	2. Cyclotella	437
	3. Anabaena	331
	4. Dinobryon	256
	5. Cocconeis	211
	Other genera	1,024
	Total	3,087

2. Chlorophyll a -
(Because of instrumentation problems during the 1972 sampling, the following values may be in error by plus or minus 20 percent.)

Sampling Date	Station Number	Chlorophyll a (μg/l)
06/22/72	01	1.4
08/19/72	01	2.6

C. Trophic Condition:

Limited Survey data and the records of others show that Rome Pond is eutrophic. Rooted aquatic vegetation is said to be a problem.

Compared to the 44 Wisconsin lakes on which sampling was completed, 71% had less mean total phosphorus, 42% had greater transparency, but only 10% had less inorganic nitrogen, and only one lake (oligotrophic Crystal) had less mean chlorophyll a.

V. NUTRIENT LOADINGS
(See Appendix C for data)

For the determination of nutrient loadings, the Wisconsin National Guard collected a monthly near-surface grab sample from each of the tributary sites indicated on the map (page vi), except for the high runoff months of April and May when two samples were collected. Sampling was begun in September, 1972, and was completed in August, 1973

Through an interagency agreement, stream flow estimates for the year of sampling and a "normalized" or average year were provided by the Wisconsin District Office of the U.S. Geological Survey for the tributary sites nearest the lake.

In this report, nutrient loads in the Bark River were determined by using a modification of the U.S. Geological Survey computer program for calculating stream loadings*. Nutrient loadings for unsampled "minor tributaries and immediate drainage" ("ZZ" of U.S.G.S.) were estimated by using the mean annual concentrations in Scuppernong Creek at station B-1 and the mean annual ZZ flow.

The Village of Dousman declined participation in the Survey, and nutrient loads were estimated*. The loads attributed to the Bark River do not include the point-source loads.

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*See Working Paper No. 1.

A. Waste Sources:

1. Known municipal -

Name	Pop.* Served	Treatment	Mean* Flow (mgd)	Receiving Water
Dousman	450	Act. sludge	0.900	Bark River
Wisc. Sch. for Boys	500	Act. sludge	0.050	No discharge

2. Industrial - None Known

* Narf, 1974.

B. Annual Total Phosphorus Loading - Average Year:

1. Inputs -

Source	lbs P/ yr	% of total
a. Tributaries (non-point load) -		
Bark River	11,600	86.7
b. Minor tributaries & immediate drainage (non-point load) -	590	4.4
c. Known municipal STP's -		
Dousman	1,120	8.4
d. Septic tanks - None known	-	-
e. Industrial - None known	-	-
f. Direct precipitation* -	70	0.5
Total	13,380	100.0

2. Outputs -

Lake outlet - Bark River 15,980

3. Net annual P loss - 2,600 pounds

* See Working Paper No. 1.

B. Annual Total Nitrogen Loading - Average Year:

1. Inputs -

Source	lbs N/ yr	% of total
a. Tributaries (non-point load) -		
Bark River	274,460	88.6
b. Minor tributaries & immediate drainage (non-point load) -	30,780	9.9
c. Known municipal STP's -		
Dousman	3,380	1.1
d. Septic tanks - None known	-	-
e. Industrial - None known	-	-
f. Direct precipitation* -	4,300	1.4
Total	309,540	100.0

2. Outputs -

Lake outlet - Bark River 294,690

3. Net annual N accumulation - 14,850 pounds

* See Working Paper No. 1.

D. Mean Annual Non-point Nutrient Export by Subdrainage Area:

Tributary	lbs $P/mi^2/yr$	lbs $N/mi^2/yr$
Bark River	109	2,589

E. Yearly Loading Rates:

In the following table, the existing phosphorus loading rates are compared to those proposed by Vollenweider (in press). Essentially, his "dangerous" rate is the rate at which the receiving waters would become eutrophic or remain eutrophic; his "permissible" rate is that which would result in the receiving water remaining oligotrophic or becoming oligotrophic if morphometry permitted. A mesotrophic rate would be considered one between "dangerous" and "permissible".

Units	Total Phosphorus		Total Nitrogen	
	Total	Accumulated	Total	Accumulated
lbs/acre/yr	30.0	loss*	694.0	33.3
grams/m^2/yr	3.36	-	77.8	3.7

Vollenweider loading rates for phosphorus ($g/m^2/yr$) based on mean depth and mean hydraulic retention time of Rome Pond:

"Dangerous" (eutrophic rate)	1.18
"Permissible" (oligotrophic rate)	0.59

* The apparent phosphorus loss from Rome Pond during the sampling year may have been due to unknown and unmeasured point sources discharging to the Pond system between the inlet sampling station (A-2) and the outlet sampling station or underestimation of the immediate drainage load but, more likely, was due to insufficient sampling. Such phosphorus washout could occur if phosphorus contributions from point or non-point sources had been reduced just prior to or during the sampling year; there is no indication that this happened, however.

VI. LITERATURE REVIEWED

Anonymous, 1972. Wisconsin lakes. Publ. 218-72, Dept of Natural Resources, Madison.

Lueschow, Lloyd A., 1972. Biology and control of selected aquatic nuisances in recreational waters. Techn. Bull. #57, Dept. of Natural Resources, Madison.

McKersie, Jerome R., Robert M. Krill, Floyd F. Stautz, Thomas Kroehn, and Richard Narf; 1971. Lower Rock River pollution investigation survey. Dept. of Natural Resources, Madison.

Narf, Richard P., 1974. DNR intra-department memorandum (review of preliminary report on Rome Pond). Dept. of Natural Resources, Madison.

Poff, Ronald J., Ronald Peining, and C. W. Threinen; 1968. Surface water resources of Jefferson County. Dept. of Natural Resources, Madison.

Vollenweider, Richard A., (in press). Input-output models. Schweiz A. Hydrol.

VII. APPENDICES

APPENDIX A

TRIBUTARY FLOW DATA

TRIBUTARY FLOW INFORMATION FOR WISCONSIN 9/30/74

LAKE CODE 556R ROME POND

TOTAL DRAINAGE AREA OF LAKE 120.00

NORMALIZED FLOWS

TRIBUTARY	SUB-DRAINAGE AREA	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	MEAN
556BA1	120.00	45.00	49.00	137.10	156.70	97.90	127.30	55.80	40.10	49.90	49.90	65.60	44.10	76.50
556BA2	106.00	38.00	45.00	130.00	140.00	87.00	110.00	47.00	34.00	42.00	42.00	58.00	36.00	67.38
556BZZ	14.00	5.30	5.90	16.00	19.00	12.00	15.00	6.60	4.70	6.00	6.00	7.90	5.20	9.13

SUMMARY

TOTAL DRAINAGE AREA OF LAKE = 120.00
SUM OF SUB-DRAINAGE AREAS = 120.00

TOTAL FLOW IN = 918.60
TOTAL FLOW OUT = 918.40

MEAN MONTHLY FLOWS AND DAILY FLOWS

TRIBUTARY	MONTH	YEAR	MEAN FLOW	DAY	FLOW	DAY	FLOW	DAY	FLOW
556BA1	9	72	350.00	24	960.00				
	10	72	220.00						
	11	72	140.00						
	12	72	78.00	3	79.00				
	1	73	180.00						
	2	73	110.00	4	260.00				
	3	73	240.00	4	270.00				
	4	73	440.00	8	180.00	30	390.00		
	5	73	300.00	6	360.00	20	190.00		
	6	73	150.00	3	190.00				
	7	73	54.00	7	64.00				
	8	73	31.00	18	23.00				
556BA2	9	72	320.00	24	700.00				
	10	72	200.00						
	11	72	120.00						
	12	72	68.00	3	68.00				
	1	73	160.00						
	2	73	100.00	4	230.00				
	3	73	210.00	4	240.00				
	4	73	380.00	8	160.00	30	350.00		
	5	73	270.00	6	320.00	20	170.00		
	6	73	130.00	3	170.00				
	7	73	47.00	7	56.00				
	8	73	27.00	18	20.00				
556BZZ	9	72	59.00	24	150.00				
	10	72	28.00						
	11	72	14.00						
	12	72	6.20	3	5.80				
	1	73	22.00						
	2	73	12.00	4	34.00				
	3	73	31.00	4	36.00				
	4	73	54.00	8	23.00	20	50.00		
	5	73	44.00	6	50.00	20	27.00		
	6	73	18.00	3	23.00				
	7	73	5.70	7	7.00				
	8	73	2.80	18	2.10				

APPENDIX B

PHYSICAL and CHEMICAL DATA

STORET RETRIEVAL DATE 74/09/30

556801
42 59 00.0 088 37 50.0
ROME POND
55 WISCONSIN

11EPALES
5

2111202
0004 FEET DEPTH

DATE FROM TO	TIME OF DAY	DEPTH FEET	00010 WATER TEMP CENT	00300 DO MG/L	00077 TRANSP SECCHI INCHES	00094 CNDUCTVY FIELD MICROMHO	00400 PH SU	00410 T ALK CACO3 MG/L	00630 NO2&NO3 N-TOTAL MG/L	00610 NH3-N TOTAL MG/L	00665 PHOS-TOT MG/L P	00666 PHOS-DIS MG/L P
72/06/22	17 20	0000	21.0	13.4	36	420	8.90	240	0.020	0.070	0.112	0.101
72/08/19	18 40	0000	25.2	4.7	36	475	7.67	204	0.100	0.100	0.092	0.064

DATE FROM TO	TIME OF DAY	DEPTH FEET	32217 CHLRPHYL A UG/L
72/06/22	17 20	0000	1.4J
72/08/19	18 40	0000	2.6J

J= VALUE KNOWN TO BE IN ERROR

APPENDIX C

TRIBUTARY DATA

STORET RETRIEVAL DATE 74/10/02

5568A1 LS5568A1
44 59 00.0 088 37 30.0
BARK RIVER
55 15 WHITEWATER
O/ROME POND
ST HWY 135 BRDG IN ROME
11EPALES 2111204
4 0000 FEET DEPTH

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P
72/09/24	15 17		0.269	1.400	0.157	0.036	0.062
72/11/04	14 25		0.471	1.380	0.067	0.044	0.071
72/12/03	10 42		0.640	0.840	0.034	0.019	0.040
73/01/07	14 00		1.060	1.100	0.105	0.032	0.050
73/02/04	15 15		0.700	2.700	0.110	0.048	
73/03/04	13 55		0.850	1.150	0.168	0.048	0.090
73/04/08	13 55		0.336	1.300	0.033	0.024	0.055
73/04/30	10 35		0.176	1.540	0.064	0.033	0.060
73/05/06	16 40		0.138	1.200	0.033	0.034	0.065
73/05/20	15 05		0.062	2.900	0.080	0.030	0.310
73/06/03	10 35		0.063	2.200	0.092	0.120	0.175
73/07/07	15 50		0.037	0.990	0.030	0.126	0.145
73/08/18	14 00		0.022	0.940	0.052	0.040	0.050

STORET RETRIEVAL DATE 74/10/02

5568A2 LS5568A2
42 59 00.0 088 34 30.0
BARK RIVER
55 15 WHITEWATER
I/ROME POND
CO HWY E BRDG IN HEATH MILLS
11EPALES 2111204
4 0000 FEET DEPTH

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P
72/09/24	15 30		0.702	2.150	0.235	0.052	0.094
72/11/04	15 45		0.590	1.540	0.100	0.056	0.090
72/12/03	10 50		0.770	1.000	0.084	0.032	0.063
73/01/07	14 15		0.970	1.150	0.150	0.040	0.060
73/02/04	15 05		0.760	1.100	0.075	0.042	
73/03/04	14 05		0.910	1.100	0.170	0.046	0.080
73/04/08	14 10		0.640	1.100	0.056	0.026	0.045
73/04/30	10 25		0.550	1.800	0.090	0.063	0.095
73/05/06	16 50		0.385	1.200	0.023	0.047	0.080
73/05/20	15 35		0.280	2.200	0.072	0.042	0.085
73/06/03	10 20		0.240	1.600	0.100	0.110	0.175
73/07/07	12 05		0.130	1.260	0.063	0.063	0.110
73/08/18	14 10		0.105	1.980	0.115	0.038	0.085

STORET RETRIEVAL DATE 74/10/02

5568A3 LS5568A3
43 01 30.0 088 28 00.0
BARK RIVER
55 15 HARTLAND
I/ROME POND
US 18 BRDG N OF DOUSMAN ABOV STP
11EPALES 2111204
4 0000 FEET DEPTH

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P
72/09/24	14	39	0.098	0.850	0.080	0.006	0.023
72/11/04	14	55	0.180	1.900	0.044	0.005K	0.018
72/12/03	11	15	0.320	0.650	0.017	0.013	0.031
73/01/07	14	30	0.350	0.960	0.132	0.054	0.070
73/02/04	15	30	0.340	0.820	0.040	0.039	
73/03/04	14	40	0.480	0.810	0.050	0.056	0.075
73/04/08	14	35	0.189	1.600	0.038	0.012	0.035
73/04/30	10	00	0.189	1.260	0.056	0.013	0.030
73/05/06	17	15	0.063	0.875	0.023	0.013	0.030
73/05/20	16	25	0.025	2.000	0.056	0.017	0.045
73/06/03	09	50	0.063	2.100	0.075	0.026	0.055
73/07/07	17	30	0.012	1.500	0.026	0.020	0.040
73/08/18	14	45	0.016	2.760	0.336	0.017	0.030

K VALUE KNOWN TO BE LESS
THAN INDICATED

STORET RETRIEVAL DATE 74/10/02

5568A4 LS5568A4
43 01 30.0 088 30 00.0
BARK RIVER
55 15 HARTLAND
I/ROME POND
US 18 BRDG W OF UTICA BELO DOUSMAN STP
11EPALES 2111204
4 0000 FEET DEPTH

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P
72/09/24	14 40		0.170	0.800	0.113	0.015	0.033
72/11/04	14 45		0.250	0.870	0.028	0.015	0.030
72/12/03	11 03		0.430	0.680	0.034	0.025	0.052
73/01/07	14 20		0.480	0.840	0.154	0.054	0.070
73/02/04	15 20		0.450	1.000	0.063	0.048	0.072
73/03/04	14 20		0.620	0.800	0.120	0.058	0.085
73/04/08	14 25		0.315	0.880	0.049	0.025	0.045
73/04/30	10 13		0.260	1.320	0.069	0.032	0.055
73/05/06	17 00		0.110	1.150	0.028	0.028	0.052
73/05/20	15 55		0.088	1.600	0.061	0.038	0.070
73/06/03	10 05		0.110	1.042	0.046	0.078	0.125
73/07/07	17 17		0.094	1.000	0.018	0.050	0.095
73/08/18	14 30		0.120	2.900	0.053	0.047	0.090

STORET RETRIEVAL DATE 74/10/02

556881 LS5568B1
43 01 00.0 088 30 00.0
SCUPPERNONG CREEK
55 15 HARTLAND
T/ROME POND
CO RD XING E OF DOUSMAN
11EPALES 2111204
4 0000 FEET DEPTH

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P
72/09/24	14 47		0.191	1.050	0.147	0.014	0.030
72/11/04	14 50		0.840	0.750	0.078	0.005K	0.015
72/12/03	11 05		1.200	0.680	0.056	0.010	0.019
73/01/07	14 35		1.420	0.580	0.080	0.013	0.025
73/02/04	15 30		1.220	2.100	0.034	0.021	0.060
73/03/04	14 25		1.280	0.960	0.094	0.033	0.065
73/04/08	14 30		1.040	0.600	0.029	0.008	0.015
73/04/30	10 00		0.650	1.150	0.039	0.005K	0.015
73/05/06	17 05		0.630	0.840	0.022	0.008	0.025
73/05/20	16 10		0.640	1.150	0.029	0.007	0.025
73/06/03	09 55		0.320	1.260	0.033	0.011	0.040
73/07/07	17 24		0.015	0.860	0.036	0.024	0.050
73/08/18	14 35		0.031	0.880	0.147	0.021	0.045

K VALUE KNOWN TO BE LESS
THAN INDICATED